

PRIEST LAKE COMMUNITY CHURCH (PWSNO 1090238) SOURCE WATER ASSESSMENT REPORT

December 16, 2002



State of Idaho Department of Environmental Quality

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SOURCE WATER ASSESSMENT FOR PRIEST LAKE COMMUNITY CHURCH

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Department of Environmental Quality is completing the assessments for all Idaho public drinking water systems. The assessment for your drinking water source is based on well construction characteristics; site specific sensitivity factors associated with the aquifer the water is drawn from; a land use inventory inside the well recharge zone; and water quality history. For non-community transient water systems like Priest Lake Community Church, recharge zones were generally delineated as a 1000-foot fixed radius around the wells.

This report, *Source Water Assessment for Priest Lake Community Church* describes factors used to assess the well's susceptibility to contamination. The analysis relies on information from the well log; an inventory of land use, well site characteristics, potential contaminant sites identified through a Geographic Information System database search; and information from the public water system file. The ground water susceptibility analysis worksheet for Priest Lake Community Church is attached.

Taken into account with local knowledge and concerns, this assessment should be used as a planning tool to develop and implement appropriate protection measures for this system. **The results should not be used as an absolute measure of risk and are not intended to undermine the confidence in your water system.**

Well Construction. Priest Lake Community Church, located on Kalispell Bay Road about a mile east of Highway 57, serves a congregation of 50. Drinking water for the church is supplied by a 6 inch cased well of unknown depth located near the back door of the church building. The casing extends only 2 inches above ground and is fitted with a vented well cap. Additional well construction details used to assess vulnerability to contamination are unknown since no well log is on file.

Priest Lake Community Church was not in compliance with *Idaho Rules for Public Drinking Water Systems* when it was inspected in June 1999. A sewer line, about 1 foot from the well, and a septic tank/lift station about 75 feet from the well, both impinge on the required sanitary setback. A drain needed to be installed in the vault for the pump controls and back flow prevention devices were needed on the underground irrigation system. An alternative well site was inspected and approved at the time of the Sanitary Survey, but the public water system file for Priest Lake Community Church, and Idaho Department of Water Resources records do not document the construction of a new well.

Well Site Characteristics. Hydrologic sensitivity scores are derived from information on the well log and from the soil drainage classification inside the recharge zone delineated for your well. Soils in the well recharge zone for The Priest Lake Community Church well are generally poorly drained to moderately well drained. Soils in these drainage classes provide some protection against migration of contaminants toward the well. Specific information about soil composition at the well site and the depth of the water table is not known.

Potential Contaminant Inventory. The 1000-foot buffer zone delineated for the Priest Lake Community Church well covers a wooded area that is becoming increasingly developed for recreational homes served by the Kalispell Bay Water and Sewer District. The lagoons for the district are about a mile from the church. A sewer line and septic tank/lift station inside the 100-foot sanitary setback zone are the most serious threat to the church's water quality. In addition to disease causing organisms, sewage can be a source of nitrates and other inorganic chemical contaminants. Kalispell Bay Road carries low volume local traffic and was not counted as a significant potential contaminant source in the analysis. The gravel pit about 1000 feet north of the well was also discounted as a potential source of ground water contamination since it has been inactive for 20 to 30 years and the land it is on has been subdivided, effectively closing the site for mining purposes. The map on page 5 of this report shows the location of the well and the approximation location of potential contaminant sites in the vicinity.

Table 1. Priest Lake Community Church Potential Contaminant Inventory

Map ID	Description	Associated Potential Contaminants	Source of Information
1	Wastewater Land Application Site	*IOC, Microbial	WLAP Database
2	Gravel Pit		Mines Database
3	Septic Tank/Lift Station	IOC, Microbial	Public Water System File
4	Sewer Line	IOC, Microbial	Public Water System File

*IOC= inorganic chemicals

Water Quality History. Priest Lake Community Church has had no water quality violations. Total coliform bacteria have never been detected in quarterly samples submitted for testing. Annual nitrate tests show concentrations ranging between 1.3 and 2.63 mg/l. While these concentrations are well below the Maximum Contaminant Level (MCL) for nitrate, 10 mg/l, the nitrate concentration is higher for Priest Lake Community church than for most other public water system wells in the Priest Lake area.

Susceptibility to Contamination. An analysis of the Priest Lake Community Church well, incorporating information from the public water system file and the potential contaminant inventory, ranked the well highly susceptible microbial and inorganic chemical contamination because of its proximity to a sewer line and septic system components. The risk to the Priest Lake Community Church well relative to synthetic and volatile organic contaminants is moderate. The complete analysis worksheet for your well is on page 6 of this report. Formulas used to compute final scores and susceptibility rankings are at the bottom of the worksheet.

Source Water Protection. This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

Bringing the well into compliance with *Idaho Rules for Public Drinking Water Systems* is the most important drinking water protection tool available to Priest Lake Community Church. Panhandle Health District recommends abandoning the current well and drilling a new one in an approved location where sanitary setback requirements can be met. If the current well is retained, the casing needs to be extended so that the open end of the well vent is a minimum of 18 inches above ground. A flow meter, sample tap and pump to waste appurtenances should be installed on the discharge line from the well. The pump vault needs to be adequately drained, and backflow prevention devices need to be installed on the irrigation system.

There are a number of voluntary, low cost drinking water protection tools that water systems can implement as well. Every system should develop an emergency response plan. There is a simple form available on the DEQ website (www.deq.state.id.us/water/water1.htm) to guide systems through the emergency planning process. Drinking water protection partnerships with neighboring landowners and any businesses in the capture zone should also be established. Some of them may not be aware that their property is in a sensitive area where household or business practices could have a negative impact on a public water supply. Priest Lake Community Church should investigate ground water protection programs like Home*A*Syst that are designed to help well owners assess everyday activities for their potential impact on drinking water quality. Topics include septic tank management, petroleum product storage, handling and storing lawn and household chemicals and similar activities. Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term.

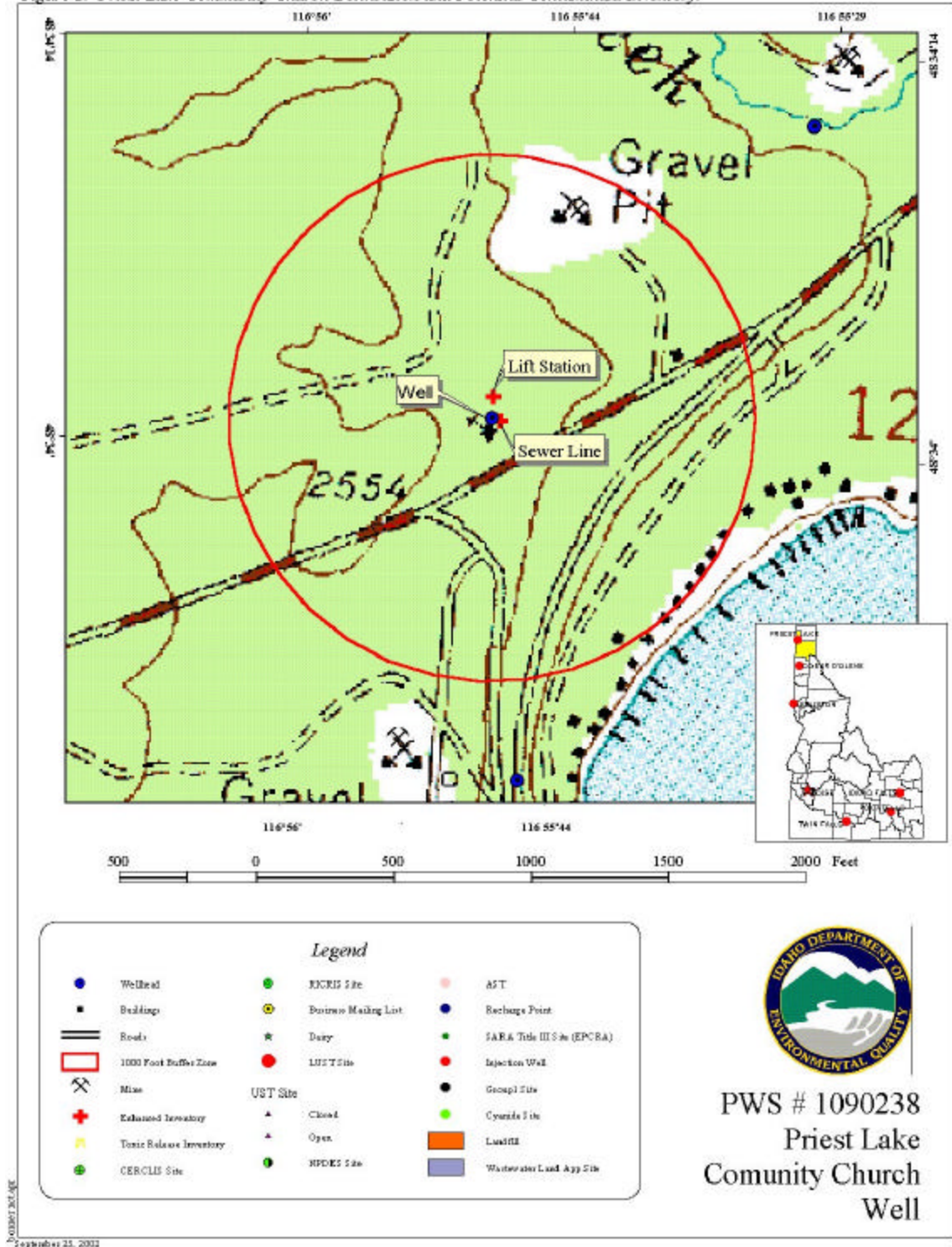
Assistance. Public water suppliers and users may call the following IDEQ offices with questions about this assessment and to request help with drinking water protection planning.

Coeur d'Alene Regional DEQ Office (208) 769-1422

State IDEQ Office (208) 373-0502

Website: www.deq.state.id.us/water/water1.htm

Figure 1. Priest Lake Community Church Delineation and Potential Contaminant Inventory.



September 25, 2002

Ground Water Susceptibility

Public Water System Name : **PRIEST LAKE COMMUNITY CHURCH** Well # : **WELL #1**
Public Water System Number : **1090238** 9/25/02 7:39:39 AM

1. System Construction		SCORE			
Drill Date	UNKNOWN				
Driller Log Available	NO				
Sanitary Survey (if yes, indicate date of last survey)	YES 1999				
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	NO	1			
Casing and annular seal extend to low permeability unit	UNKNOWN	2			
Highest production 100 feet below static water level	UNKNOWN	1			
wellhead PROTECTED FROM SURFACE RUNOFF	NO	1			
Total System Construction Score		6			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	YES	0			
Vadose zone composed of gravel, fractured rock or unknown	UNKNOWN	1			
Depth to first water > 300 feet	UNKNOWN	1			
Aquitard present with > 50 feet cumulative thickness	UNKNOWN	2			
Total Hydrologic Score		4			
3. Potential Contaminant / Land Use -		IOC	VOC	SOC	Microbial
		Score	Score	Score	Score
Land Use	UNDEVELOPED	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Sanitary Setback	YES SEWER LINE & LIFT STATION	YES	NO	NO	YES
Total Potential Contaminant Source/Land Use Score		0	0	0	0
Potential Contaminant / Land Use - 1000-FOOT RADIUS					
Contaminant sources present (Number of Sources)	YES WLAP SITE	1	0	0	1
(Score = # Sources X 2) 8 Points Maximum		2	0	0	2
Sources of Class II or III leacheable contaminants or Microbials	YES	1	0	0	
4 Points Maximum		0	0	0	
1000-foot radius contains or intercepts a Group 1 Area	NO	0	0	0	0
Agricultural Land use 1000-foot radius		0	0	0	0
Total Potential Contaminant Source / Land Use Score - 1000-foot radius		3	0	0	2
Cumulative Potential Contaminant / Land Use Score		3	0	0	2
4. Final Susceptibility Source Score		11	10	10	11
5. Final Well Ranking		*High	Moderate	Moderate	*High

The final scores for the susceptibility analysis were determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.27)
- 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Ranking:

- 0 - 5 Low Susceptibility
- 6 - 12 Moderate Susceptibility
- > 13 High Susceptibility

POTENTIAL CONTAMINANT INVENTORY LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.